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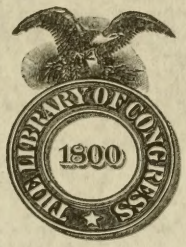

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Modern Agriculture

IN

Southern Illinois

Poorland Farm

Limestone and Phosphate

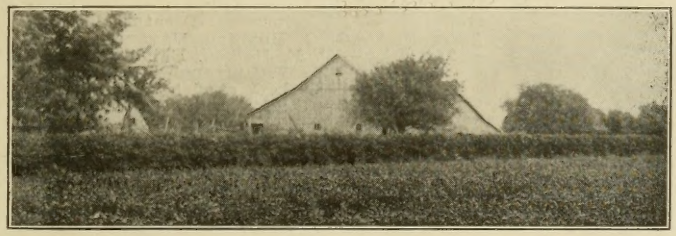
Profitable Dairying

Success With Livestock

Up-to-date Orcharding

and other Facts about

Illinois' "Egyptian Empire"



Illinois Farmers' Institute

H. E. Young, Secretary

Springfield

Illinois

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ILLINOIS FARMERS' INSTITUTE

1921–1922

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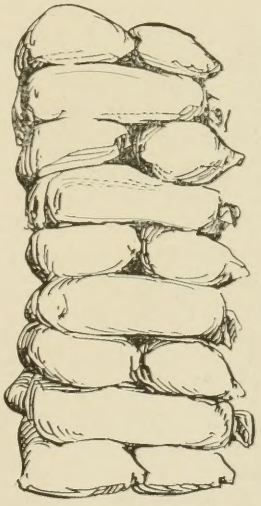
POORLAND FARM.

(H. E. Young)

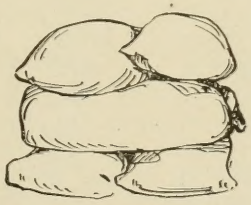
Poorland Farm in Marion County, Southern Illinois was owned and operated by Dr. Cyril G. Hopkins as a practical business enterprise.* He selected and purchased the land primarily because of its impoverished condition. By systematic soil treatment this land was within a few years built up to a state of fertility and crop production standards that equalled and even surpassed many high-priced corn belt farms. While conducted as a purely private business this farm became noted throughout the State as a wonderful example of what can be accomplished on Southern Illinois land when rightly farmed. Its outstanding crop yields have attracted state-wide attention, particularly when it is known that before Dr. Hopkins acquired the land it would raise nothing but poverty grass and mortgages. Luxuriant fields of clover, forty-bushel wheat crops and corn averaging above fifty bushels per acre were produced on this land which was generally acknowledged to be the poorest of the poor soil in Southern Illinois—all within a few years and by a simple method of soil treatment easily adaptable on any farm anywhere.

In 1903 Dr. Hopkins made his first purchase of Southern Illinois farm land. From then until his untimely death he was actively engaged in operating this land, and from time to time added to his holdings until the farm contained over 500 acres. This farm was typical Southern Illinois prairie land, the soil a gray silt loam, commonly but erroneously called "hardpan". It consists of a friable gray loam at the top, becoming nearly white at a depth of ten or twelve inches. This is underlaid by a tight clay subsoil which is next to impervious to water.



AN ACRE YIELD OF WHEAT FROM LAND TREATED WITH MANURE, LIMESTONE AND PHOSPHATE

The Hopkins farm was no better than the average run of this poor, and impoverished Southern Illinois land—if anything, it was below the average in soil fertility. Those who knew of its impoverished condition referred to



AN ACRE YIELD OF WHEAT FROM LAND TREATED WITH FARM MANURE ONLY

* Since the death of Dr. Hopkins, Poorland Farm has been operated under the auspices of The Hopkins Memorial Association, one of the chief objects of this association being to provide for the continuance of the farm along the exact lines laid down by its noted founder.

it as "Poorland Farm" (which was finally adopted by the owner as the farm name) and were inclined to question the sanity of anyone who would pay real money for such obviously poor land. But the Doctor was neither crazy, nor ignorant of the true condition of the soil. He knew it was poor, so poor it would raise nothing besides poverty grass and mortgages, but that did not dampen his conviction that it could be made productive of profitable crops.

The fact that it was poor land, agriculturally abandoned, made it all the more desirable from his standpoint. It could be bought cheaply and unless soil investigations were all wrong, could be profitably improved. He was ready to stake his reputation as a soil doctor on a practical demonstration of this kind. He burned his bridges behind him, and if crop production counts for anything, he lived to see his theory proven beyond doubt. Poorland farm was improved so that its crop yields became equal to those on high-price corn belt lands of Central Illinois, and its soil is no longer what its name signifies. But before citing these remarkable crop production results, it is well to note briefly the methods by which they were secured under Dr. Hopkins arrangement.

How Poorland Farm was Improved.

The first problem in the management of Poorland farm was to secure a clover crop. The soil was "too poor" to raise clover. Its owner interpreted this condition to mean that lime was needed. He had found that clover cannot grow luxuriantly on a sour soil. Ground limestone was purchased by the carload, and spread upon the farm. It was first shipped in from Missouri before any near by quarries were opened in Illinois, the cost was high, but its use proved decidedly profitable.

Limestone has been going on to the farm ever since. The plan was to cover forty or more acres each year, as labor and other conditions at the farm would permit. Some years only forty acres were treated, while in others two or three forties were covered. The applications were from two to three tons per acre once in six years. Rock phosphate was applied at the rate of one to one and one-half tons per acre once during the same period. This was spread on clover and turned under, manure being applied also when available. The limestone corrected the soil acidity which had so long prevented the growing of clover, and the phosphate supplied the necessary plant food markedly deficient in this soil. The plowing under of the clover and the use of manure provided the humus making material, the decay of which helps liberate the phosphorus from the raw rock and potassium, and other mineral plant food from the supply already in the soil.

In a word, this soil treatment is the secret of success on the Hopkins farm. Limestone, phosphorus and humus are necessary for the permanent improvement of the prairie soils of Southern Illinois, and have proved out in a large and practical way on this and other farms throughout this southern section.

No Guess-Work on This Farm.

As a trained scientist, Dr. Hopkins did not believe in guess work. As a practical farmer, he was of similar mind. Therefore, check strips, running entirely across the field, were left in each forty acres on Poorland farm. These check strips were six rods wide, one half (three rods) of which received neither lime or phosphate treatment, while the other half received limestone, but no phosphate, the balance of the field receiving the full treatment as described above. The same application of manure and the same rotation of crops prevailed on the entire field, check strips included.

This system was inaugurated in every field receiving soil treatment, and of course gives an absolute check on crop results each and every season. Thus the value of lime alone can be checked up on each crop in comparison with results from lime and phosphate, and also with results on soil which had no treatment whatever excepting farm manure. All that is needed to note the value of this soil treatment is to observe the fields. The check strips can easily be distinguished as far as the eye can see the crop. The untreated strips are devoid of clover, and continue to produce poverty grass. The grain crops are very light, and seldom pay the cost of production. The treated portion of the fields grow clover luxuriantly and produce very profitable grain crops.

Actual Crop Yields.

The success of Poorland Farm is best illustrated by actual crop yields. These annual yields are remarkable and not only compare favorably with yields in the fertile corn belt sections, but actually surpass the results secured on the majority of corn belt farms. A field of wheat at Poorland averaged 35½ bushels per acre on the 36 acres which received the prescribed treatment of limestone and rock phosphate. The check strip, which had received manure only, produced 11½ bushels per acre.

This particular field had been agriculturally abandoned five years prior to Dr. Hopkins' purchase of the farm. About four tons per acre of ground limestone, and two tons per acre of ground raw rock phosphate had been applied, together with a uniform application of six loads per acre of farm manure. The cost of the limestone and phosphate, and spreading them on the land, averaged $1.75 per acre per year, and resulted in an increase of 24 bushels of wheat per acre. At 93 cents per bushel this one crop of wheat paid the initial cost of the land, and treatment of the same.

Another wheat crop gave the following yields:

With manure alone..... 7.7 bushels per acre
With manure and limestone.....21.3 bushels per acre
With manure, limestone and rock phosphate....44.1 bushels per acre

In a very poor year for wheat the crop harvested 17.6 bushels per acre on the treated land; 4.3 bushels per acre on the untreated check strip, and 9.2 bushels per acre on the strip receiving limestone only.

Yields of other crops present similar figures in favor of the lime and phosphate treatment. Corn has averaged above 55 bushels per acre, and a single crop of alsike clover seed sold for enough money to pay for the land, and the limestone and phosphate used in its treatment.

These remarkable results on Poorland Farm not only prove the soundness, and efficiency of the Hopkins soil doctrine, but conclusively demonstrate the wonderful farming possibilities on Southern Illinois land. What Dr. Hopkins accomplished on Poorland Farm is no more than may be accomplished on other farms in Southern Illinois where similar soil treatment is practiced. There is nothing mysterious about the farming operations of this great soil investigator and teacher, who not only pointed the way to profitable farming in Southern Illinois, but who actually and positively achieved such notable success on his own farm in the heart of Illinois' "Egypt". Similar success awaits those who adopt and systematically follow this plan of operation as initiated and practiced on Poorland Farm. The method is practical, the cost economical, the results sure and certain.

EXPERIENCE WITH LIMESTONE AND PHOSPHATE.

(J. R. Midyett)

In 1906 I bought a hundred and twenty acres of what was then known as worn out prairie land in Franklin County, Southern Illinois near Ewing, and paid five thousand dollars for it. There was a mortgage on that farm, but I went ahead and improved the land and at the end of these improvements I was near three thousand dollars in debt. I had a small family, one daughter and one son, and the very best that I could do on that worn out prairie land was to make a living, pay my interests and my taxes.

It is fenced off into twenty-acre tracts, most of it, and through the help of the Animal Husbandry Department of the University we have kept a strict account, or as near as possible since 1912 which was about the time I used the first limestone.

Field number five, is the first field where we used limestone. In 1907 this field raised a ton and a half of timothy hay per acre; in 1908 it dropped down to a ton; in 1909 it was in corn and raised twenty-five bushels per acre; in 1910 it was in wheat and produced eleven bushels per acre, and in 1911 it was in wheat again. That year it was limed with about two tons of limestone per acre, and the yield was twenty-six bushels of wheat per acre, and the next spring, 1912, it was sowed in clover, but failed to catch. In 1912 it was limed again.

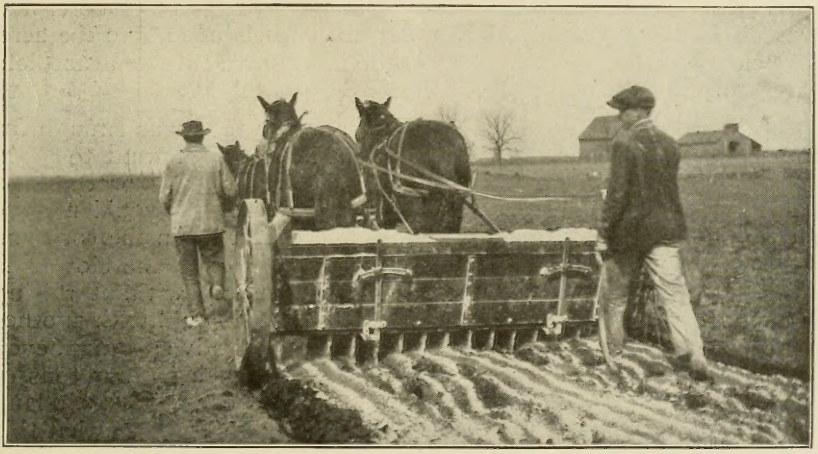
Please notice, I did not go back on it because I made a failure, but I put on just the same amount of lime again in 1912. In 1912 the wheat fell back to thirteen bushels per acre, and was practically a failure, but that fall, in September, 1912, I cut a ton and a half of clover to the acre where the wheat had grown. In 1913 it made two and a half tons of clover hay per acre. In 1914 it was in wheat again and raised twenty-eight bushels per acre, and in 1915 it was again in wheat and raised twenty-three bushels per acre. The clover again failed to

catch. I used wheat in order to get a money crop off that land, but I tried not to make it any worse. In 1916 it was in clover again and I got three tons of clover hay per acre and two bushels of seed for the second crop. Then in 1917 both lime and phosphorus were used.

All along in these different years there was, of course, some manure used, but in 1917 there were two tons of lime and a half ton of phosphate applied to this land again. That year, in 1917, it made forty-two and a half bushels of wheat per acre, and again the clover failed to catch, on account of being such a heavy crop of wheat and straw. In 1918 it was again sowed in wheat and thirty-one bushels per acre were harvested, and in 1919 it was in clover and cut two and a half tons per acre.

This field was no more than an ordinary piece of ground. It has been farmed for over a hundred years. I am satisfied that even from the time it was first broken as prairie ground it never raised as large crops as it did after it was treated.

Another field, number nine, which was in corn, was limed in 1913. That was after we commenced keeping the records, and it was a very dry season. It raised fourteen bushels of corn per acre.



Limestone on Midyett Farm Made Highly Profitable Crops.

In 1914 it was in oats and raised twenty-six bushels of oats per acre. It is flat prairie ground, just the same as thousands of acres in southern Illinois, which do not raise practically anything. I saw then that there was not enough lime, and in the fall of 1914 I limed it again, put it to wheat, and raised seventeen bushels per acre. That field was cultivated just the same after I used the lime as before. Before it was limed, it was in wheat, and ran eight bushels per acre, and one year as low as three bushels per acre. After it was limed the second time it made seventeen bushels per acre, and it was not a good year for wheat either, but it was a good year to catch clover. In 1916, which was the year in which few got a

clover crop, I raised a clover and timothy mixture of three tons of hay per acre. In 1917 it was still in clover and timothy and made two tons of hay. In 1918 it was still in clover and timothy and harvested two and a half tons of hay per acre. In 1919 it was in corn, and the corn in our country, especially on untreated land, was practically a failure. Many fields were not worth taking care of at all. Some of the land around this field had not been planted at all, some of it was planted and cultivated and raised scarcely any corn at all, but this field, with the same amount of sunshine and same amount of rain raised, forty-five bushels of corn per acre. It did not have the cultivation it should have had either, on account of the season.

Field ten, the other half of this same field, is more rolling, and some of it washes badly. Our fathers hauled manure there, and we hauled some there, but we don't do it any more. We quit putting it on and letting it wash off. The land that adjoins it is not worth cultivating at all. I would not cultivate it if it were given to me without putting anything on it. This field, was in corn in 1917. It had been limed in 1912 and again in 1917. It was limed just before the corn was planted. We put on about three tons to the acre. This field in 1917, raised forty-two bushels of corn per acre, and was in oats in 1918 and raised thirty-six bushels of oats to the acre. The clover was seeded in the oats, and in 1919 we cut from that field three tons of clover hay per acre.

When I commenced liming they said two tons was enough for four years. If a man is already in debt he does not want to go in debt more and buy limestone. He would have to have a pretty good nerve. I thought two tons was enough per acre and would not use any more, but I soon found out it made a difference in the corn and wheat, although it did not make much difference in the clover. I could not see how a man could keep a farm up without raising clover. So you see I went back just as soon as I could with another dressing, and that brought the results. I would advise a man, even if he has to borrow the money, to put on as much as four tons of lime per acre, because less than that on this worn-out prairie land will not make it grow clover. Of course, they will tell you that this old prairie land won't grow clover, never did grow clover and never will. That is what they told me, but I thought if the Experiment Station there adjoining my farm could raise clover I could too. I have sure done it—made clover grow on that old prairie ground. It will grow there just as well as anywhere else, and it will grow just a little bit better than it will on the timber land. You have the old original soil, the virgin soil, and it only needs a little liming to make it produce. If you have washed-off land it is pretty hard to make it grow clover.

On this land after it is limed and manured and you grow clover it is necessary that you use some phosphorus. Field seven was limed for the first time in 1914, that is, it was limed in the fall of 1913, and in 1914 we had fifteen bushels of wheat per acre. That is

one part of field seven. It is cut in two by a branch and one part is known as 7-A and the other 7-B. Then in 1915 it was sowed to clover and some timothy, but it failed to catch. In 1915 it was in pasture, and again in the fall of 1915 it was limed and put in wheat. It was in pasture one year. This was a bad wheat year and we raised twelve bushels and a half of wheat per acre.

Field 7-A was in wheat in 1916 and produced twelve and a half bushels of wheat to the acre, and even off that stubble there was about a ton and a half of clover hay. Then in 1917 it was in clover. There are five acres in this part of the field. It raised three and a half tons of clover hay per acre. In the fall of 1917 it was again put into wheat, and in 1918 it produced thirty-five bushels of wheat to the acre. Again it failed to catch in clover and was sown to wheat, and in 1919 it produced twenty-seven bushels of wheat per acre.

42 Bushels of Wheat per Acre on Southern Illinois Land.

On the other part of the field seven, in which there is ten acres, there was wheat, the same as the other. It was all in wheat that year and produced thirteen bushels of wheat per acre. In 1915 it was in pasture. It was limed in the fall of 1913 and then again in the fall of 1915. In 1914 it failed to catch in clover, and was limed again. In 1916 that same ten acres was put in corn and raised fifty-five and a half bushels of corn per acre.

The average of corn on untreated land was twenty or twenty-five bushels, somewhere about that, on the good farms, as we would call them. In 1917 this part of the field was in oats and raised fifty-two bushels of oats per acre, and in 1918 it was put to wheat. There was a little better than half a ton of phosphorus applied to the acre, and the wheat this last year, in 1919, made twenty-five bushels per acre.

GOOD RESULTS ON ALL SOILS.

(Robert Clanahan.)

The first time we used lime on our farm, which lies in the Bay Creek Bottoms of Pope County, was in 1910. We prepared a fifty-acre field for oats, clover and grass. In this field there were two types of soil, one a tight clay, wet land which I knew needed the lime and I covered it first. The other was a sandy soil, on which we had grown excellent clover. The action of the lime, a ton to the acre on this first soil, was to loosen it, aiding tile drains, and I got a fair crop of oats, good clover and grass. On the other sandy soil I could tell no difference until after a year's pasture, and then I found that the clover lasted a year longer than did the clover on the land which had not received the lime.

The next field that we used lime on was a sandy loam with some clay. We prepared it for alfalfa. A ton of lime to the acre on this land gave us a fair stand of alfalfa. We broke it six years later, putting on another ton of lime and a thousand pounds of phosphorus, along with the application of manure, and we got what we consider good results with corn, wheat, clover and timothy, which came in succession on this field.

The next field where we used limestone and phosphorus was an adjoining one of similar type, a sandy ridge with a slight clay mixture. I failed in my application of lime and I did not get the results which I should have if I doubled the application, nor did I get the results from the phosphorus that I would have gotten if I used a heavier application of manure, or put the phosphorus on with a heavy soiling crop. Later, when we turned over wheat stubble with the catch crop of clover and crab grass we could tell the results of the phosphate.

The next field upon which we used the phosphate and no lime was gray silt alluvial soil that lies over a prismatic subsoil. We used a thousand pounds of raw rock phosphate with an application of manure. The first year there wasn't a very decided difference in the yield of corn, though the ears were slightly better, but the next season, with another application of manure, and the turning under of a rather heavy crop of weeds, a voluntary growth of clover and grasses, there was a decidedly better yield and a better ear of corn; though there was no noticeable difference in the growth of the stalks.

The next field on which we used phosphate was a sixty-five acre field of a similar type of soil, an alluvial silt, with the same prismatic subsoil. We put on an application of a thousand pounds per acre on a ten-year sod. This had been pasture land and had been pastured pretty close. The phosphate was applied and the land was broken early in the spring with no application of manure. This was a mistake, because the first year there was absolutely no checking up. Fifty acres of this field received the phosphate, and about fifteen acres did not. The field averaged something over fifty bushels of corn per acre, but you could not tell the line of demarcation between the phosphate area and that which did not receive it. The next year, however, a heavy growth of weeds, something like a man's shoulder high, and

the clovers and grasses which grew up on the soil were turned over, and there was a difference in the size of the ears, and a slight difference in the yield.

The next field where we used limestone was a pasture, and I applied a ton to the acre and we could tell the results by an increased growth in the clover with this application of lime. The other fields were not in shape to handle, that is the reason I used the lime on this field. Even if it wasn't the proper method of application I got some good results.

In nearby hill lands I know of one field which was so poor that it would scarcely grow weeds, yet with an application of two tons of lime per acre and the sowing of inoculated sweet clover it has produced a very creditable crop of corn under very adverse conditions. I don't know the exact yield. On the same farm last summer I walked through sweet clover that was grown simply from the application of lime to

Bundles so Thick in This Field They Could Not Be Windrowed.

the soil which was at least eight feet high and so rank that a man had to force his way through it. This field was, I should judge, as poor as the other one before the application of lime.

On another farm of a red clay soil where the farmer had failed to get clover, he applied a ton of limestone to the acre and got a good stand of clover, and grew five bushels more per acre of wheat the first year than he did on an adjoining field which had not been farmed so long and which had not received the limestone. Other farmers in our territory have had good success with limestone and phosphorus. Some of our farmers have very successfully grown alfalfa on the poor hillsides by the application of lime and phosphate.

EXCELLENT CLOVER STANDS.

(Robert Endicott.)

Our soil is a little different soil from most of what they call the corn belt of the State. It is clay loam, with very little sand, in fact

not enough sand to say it is any at all, and no rocks at all. In 1905 or 1906 I used my first application of crushed limestone, and not until about 1910 or 1911 was I able to get hold of any more. About that time I had another carload and used all of it myself. I spread it all over the place, out of the wagon with a shovel. I applied, as near as I can guess at it, about one ton to the acre. It was in the fall when I had it hauled from the railroad to my place. In the winter one day, after cleaning out the barn, I told the man to "take a shovel and scrape up all that lime and take it over in the field." Well, he did so. He probably had three-quarters of a manure spreader bed full, and being that time of the year he didn't care to go down on the hillside any, so he took it out on the ridge. As the spreader became empty he began to make a circle, and in winding up he made a circle that resembled the letter "J." Of course, he thought nothing about it at that time. In the spring I sowed the field in clover. I had a splendid stand—most always do when it first comes up—but along in July my clover began to disappear, all but where the lime was.

Limestone and Phosphate Make Big Clover Crops.

Where there was no lime the clover went away, and where there was lime it grew fast, and you could see that letter "J" in the field for a quarter of a mile. That encouraged me a little bit, and since then I have used several carloads. With our soil, an application of three tons per acre will give good results.

I have been using rock phosphate ten, twelve or fifteen years in rather limited amounts. I have found rock phosphate a great help. In fact, I have applied it on land that would not grow clover before, but by the application of sixteen to eighteen hundred pounds of rock phosphate per acre, without any lime, I was able to grow a splendid growth of clover hay, probably a ton and three-quarters to two tons per acre. The way I applied the phosphate in that case was by drilling it on the wheat after the wheat was sowed in the fall. I never have been able to get the conditions right to use rock phosphate and turn it under with a legume crop, which I believe is the proper way. Conditions have never been such that I could employ that method.

DAIRYING IN SOUTHERN ILLINOIS.

(Professor R. E. Muckelroy.)

We all have to agree that we are in a great prospective livestock producing section, therefore our best interest is involved in getting into a system of livestock production that will conserve our soil fertility and at the same time bring us in quick and profitable returns. To this end I want to champion the dairy cow for southern Illinois. In my judgment, the dairy cow is most important to us.

First, because the profit risked is less in dairy cattle than in beef or hog production for if we feed high priced feeds in the beginning of the feeding period, we have to market that product at the end of the period, perhaps when the product is at a very low market value, but when we feed it to a dairy cow, we market that product that week or in the same week in which we feed, therefore when we feed high priced feed, 85 per cent of the time we can market our milk product on a high market with our high price feeds.

The second reason is that it affords steady employment. The labor question in southern Illinois is a serious one. Our work piles up at certain seasons of the year. We employ labor during that season. We let it go when we get done. Consequently it goes into the city and finds profitable employment and we can't get it back, but if we were in the dairy business, something that would give our men employment the year round, we could keep them on the farm.

One of the advantages presented in the dairy business is that it brings us in a constant revenue. That is one thing we like to have, a business that is always bringing in something, something that helps us keep the spirit of the game going.

Again, it helps the farmer to carry on his business on a cash basis. It is hard for the farmers to borrow money to buy corn and hay to make the next year's crop on. I know a man in Jackson County who brought in over $40 worth of milk products this week, and that is the average he sells, and he is not in the dairy business alone but on the diversified system. So I say our dairy business helps to carry on our farm work on a cash basis.

Another reason for dairying is that our soils are well adapted to growing forage crops. They are better suited for milk products than for beef or hogs. Our silt loams and clay loams are better adapted for raising grasses than anything else. Of course, wheat grows well.

Our climatic conditions help the pasture proposition, but this is one of the things that has to be improved upon. If we look into the dairying business around Madison, Wisconsin, or south Michigan, and come back to southern Illinois, we will say we have the best land on earth for pasture if we handle it as it should be handled. The seasons north are very, very short.

The next reason is that expensive housing is not necessary here in this end of the State, as required farther north. We need good, comfortable, substantial houses, but there is quite a difference in going into a barn in northern Illinois, southern Wisconsin or south Michigan and seeing how they have to house their animals as compared to good, comfortable barns here.

The dairy cow affords the choicest human food we can produce and we are near to markets. We have excellent marketing facilities and accommodations.

Now, I am not for dairying in southern Illinois to the exclusion of everything else because our conditions are not that way. By nature we hate to stick to a job 24 hours in the day. But on every farm one hundred, one hundred-twenty, or one-hundred-sixty acres, I believe that there should be at least eight good dairy cows. We are in a diversified section of farming because of climatic conditions, and therefore we shall always have to use our animals to consume our roughages as an aid to soil fertility.

In a 100 bushel corn crop we remove 100 pounds of nitrogen and 17 pounds of phosphorus, in a 50 bushel wheat crop 71 pounds of nitrogen and 12 pounds of phosphorus, but when we sell 10,000 pounds of milk we are only selling 5.7 pounds of nitrogen and 7 pounds of phosphorus. When we sell 500 pounds of butter fat, we are only selling 1 pound of nitrogen and 0.2 of a pound of phosphorus. Therefore, from the standpoint of soil fertility, it is best to convert our roughages into milk products, rather than sell all the fertility from the soil. Our soil is well adapted to diversified farming. We must always have as many crops growing as possible. We are not in a corn producing section, but we can raise enough corn for silage. We must raise legumes for roughage, but we will have to buy some concentrates. We must raise the feeds that will cause our cows to produce the most milk. No section ever developed into a great dairy section where the greater part of the feed had to be purchased. If we can grow our feed we can get the growers' margin as well as the milk producers' profit. But with a permanent system of soil fertility, using limestone, rock phosphate and organic matter, we can improve conditions greatly. Not one pound of commercial fertilizer need be used.

Soil Treatment Pays.

The wealth of southern Illinois is not in our mines because those will sometime be gone, but the wealth of southern Illinois is in her soils from which our very existence must come through her industry. So it is time for us to be thinking about treating our soils in the southern end of the State. In southern Illinois, there is approximately ten million acres. On this land, five million tons of limestone should be spread each year, but I am told only four hundred thousand tons were applied last year, the greater part of it on the hill lands of southern Illinois. One hundred thousand more would have been applied if we could have gotten it but we could not

get it. We must grow legumes. They require limestone. From the legumes we must get our organic matter, conserve our nitrogen supply, and use them as roughage concentrates.

If I would suggest a crop rotation, it would be something like this: one-fifth of the cultivated land to corn and sunflowers; one-fourth to winter grains, wheat, barley or rye; one-eighth to the spring grains, soy beans and cow peas; one-fourth to clover and alfalfa. What does this mean? It means that on a hundred sixty acre farm we have thirty acres of corn and sunflowers, sixty acres wheat and barley; thirty acres clover and alfalfa for hay; thirty acres sweet clover for pasture, leaving ten acres for the house and farm buildings.

Good Dairy Cows Make Good in "Egypt."

The question is often asked here in southern Illinois—"Will it pay to treat soil?" Let me give you the figures from the Cutler Experimental Field between Perry and Randolph Counties. For the fourteen-year period we have the following result: With no treatment, corn yield was 17.4 bushels per acre, where limestone was used, it produced 39.5 bushels; for wheat, no treatment, 7 bushels, where limestone has been applied, 15.8 bushels.

On the Ewing field in Franklin County, corn on land with no treatment, 13.9 bushels, where limestone has been applied, 36.9 bushels; for oats, 13.3 bushels no treatment, but treated, 29.2 bushels; wheat 2.4 bushels for no treatment, limestone 14.2 bushels. On the Raleigh field, corn 8.6 bushels no treatment, where limestone applied 42 bushels; oats, 8.8 bushels for no treatment, treatment 17.7 bushels per acre; for wheat, 4.7 bushels no treatment, 19 bushels where it has been treated.

On the State farm the corn where we have had no treatment yielded 19.4 bushels, where we have applied limestone, phosphate and manure, 66.4 bushels; oats, 10.5 bushels where no treatment, 33.6 bushels where the treatment has been applied; wheat, 6.8 bushels against 20.3 bushels. Alfalfa, where we could not grow it at all, on the treated land we can make produce three and a half tons per acre. Where we can grow it on such land, any man in southern Illinois can grow it.

In all of these treatments, I have not referred to a single pound of commercial treatment. It has all been limestone, organic matter and rock prosphate.

The Right Kind of Cows Bring Results.

Our second trouble is with the dairy cow herself. Professor Rhodes gives up this data from the Cow Testing Association records of the University. Cows that gave from four to six thousand pounds of milk with an average of 5,499 pounds, were fed at a cost of $104.32, making a profit of $37.61; the group of cows giving six to eight thousand pounds of milk, with an average of 7,656 pounds, at a cost of $116.61, or a profit of $73.23; cows in the eight thousand to ten thousand group with an average of 8,913 pounds, were fed at a cost of $126.90, or with a profit of $110.07. In the ten thousand to twelve thousand pound cow class, with an average of 11,390 pounds, fed at a cost of $149.94, gave a profit of $155.74.

What does this mean? It means this: between groups one and two, with a $12.29 investment in feed, the better cow produces $35.62; with an investment of $10.29 between the 6,000 and 8,000 pound cow, it gave us a profit of $36.84; between groups three and four, we invest $23.04 with a profit of $45.67. Now between the first group, the cows that gave 5,499 pounds of milk, and the last group that gave 11,390 pounds of milk, we have an investment of $45.62 in feed with a net profit on that feed, the additional feed invested, of $118.13 per year.

Can you beat it in building and loan or other stock? Can you beat it by loaning money at seven and ten yer cent? Can you beat it in Liberty Bonds, outside of loyalty? There isn't anything that will net you much better on the farm, than providing limestone for the soil to produce more feed and then turn your feed into a profitable dairy cow. Six such cows, fed as in the first group will net you a profit of $225.66, but with six cows of the last group with an additional $273.32 invested, we have the additional profit of $708.78. Isn't that good? It is always best to have the good cow.

How are we going to get the good cow? Two ways: First, select a profitable breed, and second, stay with it. Some persons go and select one breed of cows, and carry it two or three years and then get tired of the way she looks and breed her to another breed. Select a breed, Holstein, Jersey, or Guernsey and stay with it, or else clean out and start again. Don't mix the breeds.

There are two systems by which we may improve our dairy herds —start with our very best cows and get a pure bred bull. In five or six generations we get a well bred animal, good enough for all commercial purposes. We should use bulls from the same family lines.

Then another way to get good cows is by pure breeding, using pure bred sire and dams, but I would rather have a well bred grade animal than a poorly bred pure bred animal. Because an animal is pure bred is no sign an animal is a good one.

There are three methods of breeding—cross breeding, inbreeding and lime breeding. Lime breeding defines itself. Take bulls from

the same family line and build up those blood lines until we get such characteristices as desired. When these characteristics are backed by strong germinal determiners, then the animal will reproduce its kind.

I am a believer in inbreeding. The best Holstein cow on the State farm is inbred. The best hogs we have are inbred. We purchased six years ago, from the University, four ewes. These ewes produced lambs, from these lambs we selected a ram lamb and have used him the second time in his offspring with no ill effect. You may say that this is too far, but I leave it to you to observe the sheep. I am sure you will say that this year's lambs are better than the first. Line breeding has built up these determiners until we are getting what we want. We could never have done this if we had not started with strong family lines. If I have purchased a good animal that is worth the money, and 50 per cent of his blood is good, I want some more of his blood, and therefore if I mate him on his daughter, I get 75 per cent of his blood line. We have some good authority on piling up those germinal determiners in this way.

You might take one of those cows not capable of producing more than five thousand pounds of milk and I do not care if you feed her the very best feed you can possibly get, you can't make her produce twelve thousand pounds of milk. It isn't in her. You can't make a Holstein testing 3 per cent, test 5 per cent by feeding, because it isn't in the germinal determiners. It is by line and inbreeding that we build up such determiners.

FEEDER PRODUCTION IN SOUTHERN ILLINOIS.

(P. T. Chapman.)

Three distinctive profitable lines of farming are naturally suggested in this area. One is the raising of fruit, one is dairying, and the third is the production of feeders, both cattle and hogs, for the feed lots of the corn belt where the land is too expensive and the fertility of the soil too high with the present prices of grains, to permit of pasture for the raising of feeders.

The true test of the profitableness of any business is the acid test applied to it by the banking fraternity. No business can be successful and profitable without the assistance of the financial institutions of the country, and a careful and observing banker who has had an experience of a few years in any given community can tell from his experience what things or enterprises are the successful ones, and what is best adapted to his particular locality. I have applied that test to Southern Illinois. During the past years the institutions with which I have been connected have had occasion to finance several men in the orchard business in the Ozarks. We have never had a failure nor lost a cent. On the contrary many of them have not only proven a success, but have achieved a competency, and though young in years, some of them are almost ready to become retired farmers with a sufficient income to support them and their families.

We have also had a great deal to do with the dairy interests. We have bought milk cows by the car load in Wisconsin, Michigan and New York, and sold them to our farmers, in many instances without any security except the cows themselves, and we have the first cent yet to charge off as a loss on any of the loans, and in fact, they have practically all been paid and the farmers now have the cows free from debt, the bank has its money, and in addition to this, the farmer has a good bank account, while, as you all know without my telling you, the fertility of his farm has been improved.

The third proposition is producing feeders, we have had considerable experience in that also, from the bankers' standpoint. We have encouraged a great many of our customers to buy stock cattle, winter them, pasture them one summer and sell them back as feeders. We have furnished the money, and as security have taken a mortgage on the cattle. In every instance, without any exception, the farmer has been able to pay his loan, and in the majority of cases has sold his cattle so as to realize a fair profit on the investment.

We have another class, to which I belong as a farmer, those who keep cows and raise calves for feeders. I figure that the keep of the cow raising the calf alone is worth about $30 per year. I do not sell the calves usually until they are about two years old, but I estimated that the calf at weaning time is worth $40, which gives me a profit over all costs of $10 on each cow.

I have a neighbor who pursues a different method. He raises Angus cattle and sells the calves at weaning time. He usually realizes $40 to $50 per head. He keeps an average of twenty to thirty cows. He does not utilize any of their products except the calves. He has not a very large farm—something like 200 acres situated on top of the Ozarks, all rolling pasture land. This man has no mortgage on his farm, owns government bonds, has mortgages on some of his neighbors' farms, a good bank account, and is what is called a prosperous and up-to-date farmer. Practically all of his ready money comes from his herd of cattle. He has but little expense as he does all of his work himself.

The possibilities for making money in raising feeding hogs in this area is even greater than that of cattle. The feeder hogs of southern Illinois are fast coming into notice. One shipper in the town in which I reside has shipped during the years 1917, 1918 and 1919, 120 carloads of feeding hogs averaging from 125 to 150 per load and weighing 75 to 150 pounds. They have all gone into the corn belt. A great many of these hogs were raised by the dairy farmers on skimmed milk, clover, rape and rye pastures, costing but very little to produce them ready for the feed lot.

In addition to this our climatic situation south of the Ozarks is favorable to the raising of winter pigs without too much expense for equipment in taking care of them. It is not at all difficult to secure two litters, and in a great number of cases, three litters per year from one mother.

The quality of our hogs is the very best. We have none of the breed of hogs left now in lower Egypt that probably were there in the days of Worcester and Dickens. The hazel-splitters and razorbacks have been exterminated, and everything is high grade, well bred, and since the high prices of 1913, well cared for, and production has been stimulated as it has been elsewhere in the United States.

The narrow margin between the feeder hogs and the finished hogs has made it very profitable. All of the legumes will grow in this area after the application of limestone, and with legumes you can raise feeder hogs cheaply and rapidly. About seventy per cent of the area of this section should not be plowed—at least not more than once. Thirty per cent probably can be utilized for grain farming by careful rotation of crops.

Southern Illinois Feeders Find Good Market in Corn Belt.

All of the grasses suitable for pasture grow luxuriantly on these lands. It makes natural pasture ground for young cattle and hogs, and with the addition of rape, clover, cow peas and rye it is an easy proposition to produce ready for the feed lot either class of feeders on an economical and profitable basis, and at the same time maintain the fertility of the soil, build up the farm, and increase the bank account.

DEMAND FOR SOUTHERN ILLINOIS FEEDERS.

(W. E. Riegel.)

The people in the southern part of the State can produce feeders much cheaper than we can produce them in the central part of the State. It costs us eighteen to twenty-two cents a bushel to husk our corn, shell it and load it on the car and ship it to Southern Illi-

nois. With us people in the corn belt the feed is one of the big problems in connection with a demand for feeder hogs. In our corn fields we can grow a good crop of soy beans, a good crop of rape—in other words, we can grow three pretty good crops on the same field at the same time. We have there the beginning of the production of pork. Instead of having to buy a lot of tankage we have the feed that is necessary to finish the pork right in the field. If we can buy good hogs here can ship them to the central part of the State and finish this pork.

The kind of feeders that can be produced in the southern part of the State are the kind of feeders that we get from Wisconsin, some of the finest feeders that have ever gone into the corn feed lots. Why? Because those hogs are well bred hogs, they have been well developed. They have had plenty of protein feed from the time they were pigs until they reach 125 pounds. We do not have to get those hogs home and give them a dose of worm medicine, or dip them to get the lice off their bodies, and that sort of thing; all of those conditions which affect the hogs and make them less susceptible to disease have been cared for previous to shipment. That is the kind of a hog that southern Illinois can produce by using a little limestone, by using a little clover and by producing their own pigs.

Hog feeders have found that it is one problem to raise hogs and it is another problem to finish hogs. There are several reasons for that. It takes a lot more equipment to produce your own pigs, take care of your brood sows and finish your hogs than it does to do either one job or the other. Not only that, but it takes a little more equipment "above the shoulders" to do both jobs than it does to do one or the other. In other words, if I talk with a man about how many pigs he has raised and he tells me he is getting an average of eight or ten pigs to the sow I immediately suspect that he only has two or three or four sows. The point is this, if you have eight or ten sows you get a bigger average of pigs than if you have a hundred and fifty sows, consequently you will make more profit per sow from the smaller number of sows. There is a smaller percentage of farmers in the corn belt who want to feed hogs than there is on the farms of southern Illinois who will want to produce hogs, consequently a large number of men in the southern part of the State with one or two or five or ten sows producing one-hundred-pound shoats will supply the needs of central Illinois. But go a step farther with producing feeders in southern Illinois that will be in demand in central Illinois; a man today who is trying to feed and finish one or two wagonloads of hogs in the southern part of the State is going to feed more or less corn.

The man who is finishing ten hogs in the southern part of the State can easily produce thirty-five, or forty, one-hundred-pound shoats at a much greater profit. The demand for good feeders in the central part of the State is and will be so great that it will take all the good hogs which can be produced in southern Illinois.

ORCHARD POSSIBILITIES IN SOUTHERN ILLINOIS.

(C. E. Durst.)

Southern Illinois has already proved herself a great fruit growing section. A great factor in the success of southern Illinois orcharding is the fact that that section is at the southern limit of successful apple production. South of this region the apple is not a success at all. This factor gives southern Illinois an advantage on the early apple market that no other section can ever take away from it. Southern Missouri and the Virginias are the only sections that can possibly compete with southern Illinois on the early apple market, but these sections send more fruit to other markets than does southern Illinois, so that in practice they offer practically no competition.

The Yellow Transparent apple, the finest early apple in existence, grows to perfection in southern Illinois. It is my understanding that this variety is not a success in the Virginias, and I am told it does not do so well in southern Missouri as in the Ozark Hill section of southern Illinois. The Duchess, when thoroughly sprayed for blotch, and the South Carolina Summer, a new variety of promising merit, also do well in southern Illinois. All of these varieties regularly bring fancy prices, and the demand is never filled.

Among the late varieties, the Winesap is the most important and it grows remarkably well in southern Illinois. The tree is a good grower, a consistent bearer, and relatively resistant to serious diseases.

A Southern Illinois Apple Orchard Which Speaks for Itself.

The types of soil in southern Illinois also play their part in the success of the fruit industry. The orchards in southern Illinois are grown on two main types of soil. One of these is the yellow silt loam, which covers a great part of the unglaciated section, embracing the seven lower counties. These counties, with the exception of extensive river and creek bottom lands, are more or less rolling and the soil is mostly of deep loess nature, having been formed by water deposits in the distant past; these later were raised by upheavals into a mountain range, the chief ridge of which extended across the north parts of Union and Johnson Counties. The Ridge Road, which now covers this ridge from Cobden to Alto Pass, is without question the most scenic road in Illinois.

The deep loess soil in these unglaciated counties ranges in depth from a few inches to fifty feet or more. Usually, it is underlaid by sandstone or limestone. The best fruit land seems to be underlaid by sandstone. This loess soil allows easy and deep penetration by roots. It is not naturally rich in fertilizing elements, but it yields up readily the fertility it possesses. The wide feeding range of the roots no doubt partly accounts for this. This soil responds remarkably quick to fertilizer treatment; there is no soil that will grow such a wide range of crops successfully; and with proper cultivation it holds moisture well enough for crop needs through the dryest seasons. Naturally, in a soil like this, a good tree growth is readily obtained.

The other soil type in which southern Illinois orchards are grown is the gray silt loam on tight clay, lying just north of the unglaciated section. The moraine separating these two types extends across the southern parts of Jackson, Williamson and Saline Counties. The land is level or slightly rolling. The soil has become quite acid in most places and is deficient in nitrogen and organic matter. As a result, some orchards have become unprofitable and not a few have been removed. But with systematic soil treatment, this soil is rapidly coming back into its own. It is somewhat poorly drained in places because of the tight soil just under the surface, but fruit trees seem to have no difficulty under this condition.

It is interesting to note in this connection that years ago the Baltimore and Ohio Railroad stopped their fast trains in Richland County to let their patrons view the wonderful orchards along the right of way. Some of these orchards would hardly bear inspection today, but this is due to neglect on the part of owners rather than to a lack of possibilities of the country.

This section has one great advantage over the unglaciated land to the south. It is not so subject to soil washing. On the other hand, the orchards in this section are perhaps more subject to winter freezes and to late spring frosts than those of the unglaciated section.

The contour of the land is another important factor in southern Illinois orcharding, especially in the unglaciated section. The land there has never been flattened out by glaciers and is more or less rough. It is also quite a bit higher than the land both to the north and south of it. For example, the Illinois Central Railroad station at Anna is just about twice as high above sea level as Cairo, and it is also 215

feet higher than the station at Carbondale. And Anna is not nearly so high as the great bulk of Union County orchard land, for the Illinois Central Railroad follows the creeks and lower land in going through the county.

The Mobile and Ohio station at Alto Pass is 728 feet above sea level, while Etherton, only about six miles to the north, is but 403 feet above sea level; and Mountain Glenn, about four miles to the south, is 449 feet above sea level. And all of the orchard land between Alto Pass and Cobden is higher than the station at Alto Pass.

At Makanda, the Illinois Central station is 431 feet above sea level, but the plateaus on either side, upon which the fruit is grown, rise at least 200 feet higher. One cannot realize the elevation of this land until he examines the relief map. The rest of the State is practically level on the relief map, but as soon as the southern edge of Jackson and north of Union County is reached a distinct hump is found.

The height of this land above the surrounding country gives the orchards good exposure and no doubt delays the blooming of the trees in the spring to some extent. It provides excellent air drainage, and thereby saves the fruit from late spring frosts quite frequently. Last spring, for instance, nearly all of the peaches and apples in this section escaped spring frosts, when the buds over practically the entire State were destroyed.

The counties in the glaciated land to the north do not have the contour advantages of those in the unglaciated section, but the orchards

An "Egyptian" Peach Crop.

in this district escape winter freezes that often kill the fruit in central and northern Illinois, and they also escape more of the late spring frosts. While the land is level or slightly rolling, there is considerable opportunity for choice in selection of favorable sites.

The opportunities for prospective horticulturists are very promising in southern Illinois at the present time. There is no question but that fruit will grow successfully in this section, and there can be no question but that fruit is bound to bring good prices for some time, for the number of bearing fruit trees in the country is quite inadequate to meet the needs.

The glaciated districts to the north does not perhaps offer quite the advantages of the unglaciated section, but the opportunities are good nevertheless. While some of the old orchards do not give a favorable impression, the facts are that where orchards have been properly cared for in this section excellent results have been obtained. Living proofs of this statement are offered by the Perrine orchards at Centralia, by the Dunlap orchards near Flora, by the Drew and Galeener orchards in Wayne County, by the Wright orchard in Marion County, and by many others. These holdings have made their owners some handsome profits during recent years and they prove beyond all doubt that fruit can be made to grow again in this section as successfully as it has ever grown in the past.

HILL LAND ORCHARDING.

(J. C. B. Heaton.)

The hill land orchards of southern Illinois are rapidly growing themselves from under heavy mortgages, and pulling their owners from under a burden of indebtedness so overwhelmingly large, that if engaged in the ordinary lines of farming their case would be hopeless. The orchards are placing their owners on a financial basis so solid they feel that they can well afford some of the luxuries and many of the modern conveniences of life.

The way is still open for others to do the same thing, and do it easier and more of it, with hardly a possibility of failure, if intelligent use is made of the experience of others. Those who plant an orchard now need not make the mistakes or experience anything like the hardships of those who first began the business. At that time an orchard was considered by our neighbors and bankers as a liability; now it is looked upon as an asset. Then it was difficult to convince any man, much less a bank cashier, or a farm loan agent, that a well cared for orchard amounted to much. Now a man with a well cared for orchard can easily borrow to the limit of his real needs, for it has begun to soak into the heads of even the most conservative bank cashiers that a man with a well cared for orchard has financial prospects that it is not good business to ignore.

Thirty-five years ago there was not a commercial orchard within twenty miles of New Burnside. Now Union and Johnson Counties are classed as one among the greatest early apple producing sections in the United States. As proof of this, I quote from the report of the U. S. Department of Agriculture on condition of the early apple

crop of southern Illinois, June, 1918: "Southern Illinois, with the industry centering in Union and Johnson Counties, is one of the most intensive and specialized areas of early apple production in the United States." I will say, here and now, that Burnside Township, with a few orchards in Tunnel Hill Township, is Johnson County when it comes to early apples. There are a few orchards of the old varieties scattered over the county; but nearly all of the up-to-date orchards are in the northeast corner of the county, with New Burnside the main shipping point. Much of this may seem irrelevant and a digression from the subject, but, if I succeed in pointing the way to better things for some of our hill farmers, I must touch on some of the hardships and successes of the pioneers, that they may take courage and launch out into the business confidently looking forward to such success as was not even dreamed of by those who first ventured.

The question might arise here, "With all the orchards now planted, is there not a probability of overdoing the apple business?" Nay, verily. When our early apples begin to move we have the whole world for our market without competition. We are first on the market, and southern Illinois will continue first for many years to come. We seem to be on the southern edge of good apple production and have no fear of successful competition. There is no place on the map where early apples are grown or even being planted, in sufficient quantities to be a competitor on the market. Hence, with our very early apples, we have the markets to ourselves and get the cream. If all the available land in this section was in early apples in full bearing, we could not glut the market if they were properly distributed.

Many of our farmers seem unable to appreciate the value of our hills for orchard purposes and are, unfortunately for them, turning loose many exceptionally well located orchard sites at prices that will in a few years cause them to have a feeling akin to sea sickness when they happen to pass that way and look upon the old home farm and see the signs of prosperity brought about by an orchard, where they had toiled the better part of their lifetime for a bare living.

For fear one may get the impression that the financial side of the orchard business is the only attraction, I want to say the orchardist has more real leisure, solid comfort, less worry and exposure than any other kind of farmer. The livestock farmer, the cattle feeder, the dairyman, sheep or horse breeder is compelled to look after his stock through all kinds of weather from January 1st to December 31st every year. The harder the rain, the deeper the mud or snow, the colder the weather and the more biting the blizzard the greater the necessity of the personal care of the farmer. But with the orchardist it is quite different when the rain, mud and snow comes, and the "blizzard whistles through the old peach orchard," he is snugly housed with his family, reading the daily papers, magazines, Mark Twain or Riley, and otherwise enjoying the fruits of his labor until the storms of winter are past. The joy and satisfaction one can get out of life in the long winter evenings when the mercury is below zero, a blazing furnace in the basement, a basket of crisp, juicy, rich, red Winesaps and Jonathans, with a few Grimes Golden mixed in to give variety of color

and flavor, on the table, the cider to come later, and the jellies, jams, marmalade, fruit butters and other by-products of the orchard stored away in the pantry for future reference, bring pleasures that are beyond my powers of description. Just let your imagination run riot and try to draw a mental picture of these things as coming to yourself, together with the smell of the apple blossoms and the rich red apples at harvest time rolling over the grader into barrels that later bring the golden dollars and you have a bird's eye view of some of the good things that a well-cared for orchard brings to its owner.

SOILS AND CROPS OF SOUTHERN ILLINOIS.

(C. J. Thomas.)

Our great soil areas, the gray silt loam on tight clay, was once thought to be nearly worthless. Now we find that it can be made very profitable simply by an intelligent use of limestone and legumes. Then we also have very large areas of yellow silt loam and in many cases this land today is rivaling the corn belt in its production.

Now, I am speaking for all southern Illinois, but I am so much better acquainted with Jackson County that I will use that as an example. I believe we have every type, or very nearly every type of southern Illinois soils represented in Jackson County.

We have the Big Muddy River passing through the central portion of our county, with its many tributaries. Probably every county of southern Illinois has something comparable to that. You will find the small river bottomlands and the creek bottomlands represent several important types. Over in one section is the principal area of that great type known as the gray silt loam on tight clay, in the northeastern portion. Only in isolated spots do we find that type in any other part. In another section of the county we find that grand area which is destined to become so famous for its fruit. We already have a number of very profitable orchards there, and that industry is being very rapidly developed. Then we find along the Mississippi River a broad belt of from two to four miles wide in many places, and there is where we get a chance to brag about our high producing land. Our greatest corn growing area in Jackson County is found in this region, which includes some of the best land in our country. I have seen the books of a certain man who has been farming this land extensively, and the figures show a cash return around forty to forty-eight dollars per acre. You know that means the land is producing something. That land was mainly in alfalfa.

We have some very high producing land, producing corn mainly, corn and alfalfa. There is another farm in this region which has produced practically nothing but corn in the last twenty years, and very few crops have fallen below sixty bushels to the acre.

Now, we will pass from this great rich area of bottomlands to the northwestern portion where we find a region that has been given over mainly to wheat. Although in many of those places clover still grows

in a very half-hearted way without liming, the people are discovering that by the use of lime they can double the value of the land. Much of this land is also well adapted to fruit raising. It is high and is a very good type. It is just as good as the most approved types on which these orchards are so successful.

Along the larger streams we find some bottomland that is not just what it should be, but just back of that we often find a type which is almost ideal. It is not as high in fertility as some other lands, but by modern methods of farming, where they have given it a little lime, and especially some phosphorus, this land certainly does rival the corn belt in production. I have in mind several farms which, under the adverse conditions of the last few years, made an income to the owner well up to corn belt standards.

On this other type of soil, the common type that you see around Carbondale, I can refer you to farms where the average corn crop would probably be above forty bushels per acre, while some fields produced sixty bushels per acre, even under the adverse conditions of this past year. Of course, lime and clover have been used to build up this land in humus and active organic matter, and rock phosphate has also been applied.

"HARD-PAN" A MISNOMER.

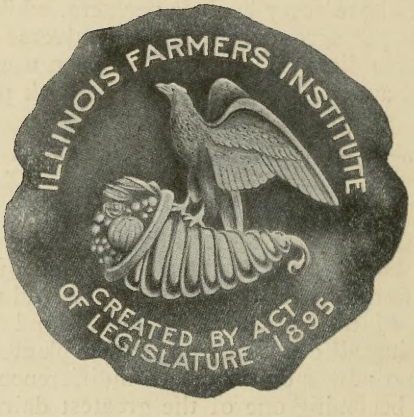
(Ferdinand Kohl.)

Let us not hide our light under a bushel or close up like a clam, but tell the world where Egypt is and what a land of possibilities it is. Where could you find a better dairy country? And now that we have learned the value of the sunflower, what a wonderful silage maker it is, and after liming all our land and having planted more soy beans and sweet clover no power on earth but indifference among ourselves can keep us from becoming one of the greatest dairy countries in the world.

Another handicap which we have allowed to grow up is our native talk about "hard-pan" in southern Illinois. We have no such animal. We do have tight clay, but it is nothing more or less than tight clay. Water passed through it; it can be spaded without difficulty when it is wet. As a proof that it is only tight clay one need but expose it to the winter elements and he will find in the spring a nice, pliable substance in which blue grass and other crops grow remarkably well.

We do ourselves an injustice by allowing this tight clay to be maligned, for it contains in it an element which gives to our peaches and apples a flavor and color unapproachable. We should emphasize this fact and discontinue calling it by the wrong name.

All we need to do is to give this southern Illinois soil a liberal application of limestone, then plant legumes, following it with livestock farming and a little later on by giving it an application of phosphate. This gives us a soil which can compete in earning capacity with the lands of central and northern Illinois, and yet today it can be bought at a price materially less than its value.



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